

# ABSTRACT

There is provided a device for generating a frame of reference and tracking the position and orientation of a tool in computer-assisted image guided surgery or therapy system. A first curvature sensor including fiducial markers is provided for positioning on a patient prior to volumetric imaging, and sensing the patient's body position during surgery. A second curvature sensor is coupled to the first curvature sensor at one end and to a tool at the other end to inform the computer-assisted image guided surgery or therapy system of the position and orientation of the tool with respect to the patient's body. A system is provided that incorporates curvature sensors, a garment for sensing the body position of a person, and a method for registering a patient's body to a volumetric image data set in preparation for computer-assisted surgery or other therapeutic interventions. This system can be adapted for remote applications as well.